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10/083,257	02/27/2002	Nobuhiko Kikuchi	520.41285X00	2554

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ANTONELLI, TERRY, STOUT & KRAUS, LLP
1300 NORTH SEVENTEENTH STREET
SUITE 1800
ARLINGTON, VA 22209-3873

EXAMINER	
BELLO, AGUSTIN	
ART UNIT	**PAPER NUMBER**
2633	

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/083,257	KIKUCHI ET AL.	
	Examiner	Art Unit	
	Agustin Bello	2633	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-17 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-9 and 14-17 is/are rejected.

7)☒ Claim(s) 10-13 is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on 27 February 2002 is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Drawings

1. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the dividing means for dividing the light signals of claim 9 and the first multiplexer acting as a demultiplexer in claims 14-17 must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 14-17 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The applicant recites a that the first wavelength multiplexer can also act as a demultiplexer and acts to divide light for the purpose of reference and control signals. However, it is not clear how this is accomplished and the drawings fail to support these limitations.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claims 1-9 and 16-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shpantzer (U.S. Patent Application Publication No. 2002/0186435).

Regarding claims 1 and 9, Shpantzer teaches a plurality of first optical transmission lines (reference numeral 342 in Figure 3a) that transmit a plurality of light signals, each of which has a center wavelength different from the other; a first optical wavelength multiplexer (reference numeral 320 in Figure 3a) to which the plurality of first optical transmission lines are optically connected; and a second optical transmission line (reference numeral 245 in Figure 3a) for transmitting emitted light. Shpantzer differs from the claimed invention in that Shpantzer fails to specifically teach an optical filter that has predetermined periodic transmittivity for a wavelength connected to the second optical transmission line, wherein after the plurality of light signals, each of which has a center wavelength different from the other, are wavelength-multiplexed using the first optical wavelength multiplexer, the plurality of wavelength-multiplexed light

signals are transmitted through the optical filter so that, corresponding to each of the plurality of light signals, each of which has a center wavelength different from the other, each light signal, a bandwidth of which has been narrowed as compared with each light signal before the light signal is transmitted through the optical filter, is obtained. However, Way in the same field of optical communication teaches an optical filter (reference numeral 118 in Figure 7 and all of Figure 10) that has predetermined periodic transmittivity for a wavelength connected to the second optical transmission line, wherein after the plurality of light signals, each of which has a center wavelength different from the other, are wavelength-multiplexed using the first optical wavelength multiplexer (reference numeral 116 in Figure 7), the plurality of wavelength-multiplexed light signals are transmitted through the optical filter (reference numeral 118 in Figure 7) so that, corresponding to each of the plurality of light signals, each of which has a center wavelength different from the other, each light signal, a bandwidth of which has been narrowed as compared with each light signal before the light signal is transmitted through the optical filter, is obtained (e.g. the function of the notch filter 118 in Figure 7). Furthermore, Shpantzer suggests the use of filter like that disclosed by Way to shape the signals (reference numeral 335 in Figure 3a and paragraph [0055] of Shpantzer). Moreover, Shpantzer discloses that such a pulse shaper can shape the signal according to a variety of different factors, which include narrowing the pulse width. Therefore, it would have been obvious to one skilled in the art at the time the invention was made to, as suggested by Shpantzer, include an optical filter such as that disclosed by Way in the configuration claimed.

Claim 2 recites limitations that are very similar to the limitations of claim 1 with the exception that the narrowed signal is recited as a single side band signal. The combination of

Shpantzer and Way meet the similar limitations as discussed in the rejection of claim 1 and further teach that the narrowed signal is a single side band signal (title and Figure 10 of Way).

Regarding claims 3 and 4, the combination of Shpantzer and Way teaches a plurality of first optical transmission lines that transmit a plurality of light signals (reference numeral 342 in Figure 3a of Shpantzer), each of which has a center wavelength different from the other; a plurality of first optical wavelength multiplexers (reference numeral 320 in Figure 3a for each transmitter 250 in Figure 2b of Shpantzer) to which the plurality of first optical transmission lines are optically connected; a plurality of optical filters (reference numeral 335 in Figure 3a of Shpantzer), each of which is placed corresponding to each of the plurality of first optical wavelength multiplexers, each filter having predetermined periodic transmittivity for a wavelength; a second optical wavelength multiplexer (reference numeral 210 in Figure 2b of Shpantzer) that wavelength-multiplexes a plurality of light signals, which have been transmitted through the plurality of optical filters; and second optical transmission line (reference numeral 220 in Figure 2b of Shpantzer) for transmitting emitted light, which output from the second optical wavelength multiplexer; wherein: after the plurality of light signals, each of which has a center wavelength different from the other, are wavelength-multiplexed using the first optical wavelength multiplexer, the plurality of wavelength-multiplexed light signals are transmitted through the optical filter so that, corresponding to each of the plurality of light signals, each of which has a center wavelength different from the other, each light signal, a bandwidth of which has been narrowed as compared with each light signal before the light signal is transmitted through the optical filter, is obtained (as discussed above in the combination of Shpantzer and Way in the rejection of claim 1); and a predetermined set of the first optical transmission line, the

first optical wavelength multiplexer, and the optical filter outputs N pairs of wavelength-multiplexed signals, for which wavelength interleave has been performed at Nth wavelength intervals respectively, and said N pairs of wavelength-multiplexed light, which have been output, are wavelength-multiplexed by the second optical wavelength multiplexer without controlling a polarization state one another (Figure 2b and 3a of Shpantzer and Figure 10 of Way).

Regarding claims 5 and 6, Shpantzer teaches an optical wavelength multiplexer, transmittivity of which has wavelength dependency, is used as the second optical wavelength multiplexer (reference numeral 210 in Figure 2b); in the second optical wavelength multiplexer, transmission bandwidth for each light signal having a different wavelength is made narrower than a spectrum width of light signal; and a plurality of transmission peak wavelengths the second optical wavelength multiplexer are adjusted so as to become substantially equivalent to center wavelengths of light signals incident on the second optical wavelength multiplexer respectively (all functions recited are met by the multiplexer 210 in Figure 2b of Shpantzer).

Regarding claim 7 and 8, Shpantzer teaches an optical wavelength multiplexer, transmittivity of which has wavelength dependency, is used as the first optical wavelength multiplexer (reference numeral 320 in Figure 3a); in the second optical wavelength multiplexer, transmission bandwidth for each light signal having a different wavelength is made narrower than a spectrum width of light signal; and a plurality of transmission peak wavelengths the second optical wavelength multiplexer are adjusted so as to become substantially equivalent to center wavelengths of light signals incident on the second optical wavelength multiplexer respectively (all functions recited are met by the multiplexer 320 in Figure 3a of Shpantzer).

Regarding claims 16 and 17, Shpantzer teaches a tunable light source (Figure 3a and 3b).

Allowable Subject Matter

6. Claims 10-13 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Agustin Bello whose telephone number is (571) 272-3026. The examiner can normally be reached on M-F 8:30-6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Chan can be reached on (571)272-3022. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

AB

A. Bello

AGUSTIN BELLO
PATENT EXAMINER
03/17/05